SIRAYA Tech

Fibreheart TPU-GF

Black

Fibreheart TPU-GF: Engineering Grade Toughness, Zero Frustration.

Stop choosing between stiffness and brittleness. Fibreheart TPU-GF is the ultimate "Stiff-but-Elastic" composite, designed for high-impact functional parts that standard PLA-GF or Nylon-GF simply can't handle. Featuring ultra-low warp and exceptional vibration damping.

Ideal for:

- Industrial Protective Housings
- High-Load Jigs and Fixtures
- Vibration Dampeners
- Automotive Exterior Parts
- Heavy-Duty Casters and Wheels
- Power Tool Grips
- Sporting Goods Components

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Property Data

Mechanical Properties	Value	Method
Tensile Stress at Break X-Y (MPa)	32	ASTM D638
Young's Modulus X-Y (MPa)	445	ASTM D638
Elongation at Break X-Y (%)	80	ASTM D638
Charpy impact strength (KJ/m^2)	Did not break	ISO 179
Bending Strength (MPa)	15	ISO 178
Bending Modulus (MPa)	450	ISO 178
Tensile stress at 100% (MPa)	8.3	ASTM D412
Tensile stress at 200% (MPa)	8.8	ASTM D412
Tensile stress at 300% (MPa)	9.5	ASTM D412

Other Properties	Value	Method
Vicat softening temperature (℃)	157.3	ISO 306
Shore Hardness D	67	ISO 7619
Melting Point (℃)	230	ASTM D3418
Filament Density g/cm³	1.32	ISO 1183
Water Absorption %	1.69	ISO 62 Method 1

Work Flow

Specification	Value
Name	TPU-GF
Material	Thermoplastic Polyurethane + 15% short cut glass fiber
Version	1KG
Net Weight KG	1
Color	Black
SKU	ST3032
Filament Density g/cm³	1.32
Diameter	1.75±0.03 mm

Preparing for Printing

Drying	50-60°C for 6+ hours
Compatible Build surfaces	Glass, PEI Film, or PVP Glue Stick
Enclosure	Not mandatory, but it is recommended
Nozzle material	Carbon-hardened, hardened steel or higher-grade nozzles
AMS compatibility	AMS/AMS Lite compatible, AMS 2 incompatible

***Wear Warning**: Glass fiber is abrasive. While compatible, extensive use may accelerate wear on the AMS internal plastic filament paths and feeder gears. Monitor your AMS components over time.*

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Work Flow

Printing with Fibreheart TPU-GF

Nozzle Temperature	240-270°C
Recommended Nozzle Diameter	0.4mm or larger
Build Plate Temperature	40-60°C
Cooling Fan Speed	20-50%
Print Speed	30-100mm/s
Retraction Speed	25-35mm/s
Retraction distance for Direct Drive	0.8mm - 1.5mm
Retraction distance for Bowden	2.0mm - 4.0mm (tune carefully)
Recommend Layer Height	≥ 0.2mm

Moisture Management

Storage Tip	Recommendation
Sealed Packaging	Store in a sealed aluminum foil bag to prevent moisture.
Use Desiccants	Add desiccants to absorb moisture and keep the material dry.
Avoid Sunlight & Heat	Keep away from direct sunlight and high temperatures to prevent degradation.
Temperature Control	Store at room temperature; avoid extreme heat or cold.

Work Flow

Troubleshooting Common Issues

Issue	Diameter inconsistencies
Solution	Please check if accidentally used a brass nozzle. It may have widened.

Issue	Brittle Parts
Solution	Usually indicates moisture. Dry the filament longer.

Issue	Clogging
Solution	Ensure your retraction distance is not too high. Heat creep can cause the fibers to bunch up in the cold zone.